



University of Maryland School of Nursing Photo by Rick Lippenholz



Technology's Role in Addressing Maryland's Nursing Shortage: Innovations & Examples

A Report of the Technology Workgroup,
Maryland Statewide Commission on the Crisis in Nursing
January, 2004

About the Technology Workgroup

The Technology Workgroup of the Maryland Statewide Commission on the Crisis in Nursing was established during the 2002 Regular Session of the Maryland legislature by Senate Bill 46. The Workgroup's Chair is Dr. Maria Koszalka, Vice President of Patient Care Services at Johns Hopkins Bayview Medical Center and the Co-chair is Ms. Susan K. Newbold, Doctoral Candidate, University of Maryland School of Nursing.

About this Report

In 2003, members of the Technology Workgroup embarked upon a grass-roots assessment of technological tools that are being used to:

- Maximize nursing productivity
- Increase the quality of patient care
- Improve the work environment infrastructure
- Alleviate the top concerns of Maryland nurses

This report highlights examples of helpful technologies that are being used in or near Maryland to achieve these objectives.

While case study examples may include company names, the Technology Workgroup does not endorse nor recommend any specific products or vendors, nor is this document designed to be an exhaustive listing of vendors.

The Authors

This report was generated through the generous donation of time and talent by volunteer workgroup members. Special thanks are extended to:

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Acknowledgements

Special thanks are extended to the persons and facilities listed as examples within this report for providing information regarding the use of technology.

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This report is accessible online:

<http://maryland.nursetech.com/F/NT/MD/nursingInnovations2004.pdf>

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Executive Summary

Role of Technology

Nursing challenges in the State of Maryland are multifaceted, necessitating multifaceted solutions. Technology is playing a role in alleviating these challenges now, and is expected to play an even larger role in years to come.

Technology is a facilitator; it is not a solution in and of itself. Technology is a vehicle, within the context of a problem or opportunity that enables new capabilities and ways of performing work.

New capabilities afforded by technologies have the capacity to produce a work environment that is more connected and more efficient. Technological workplace tools help nurses focus on care delivery rather than logistical aspects of coordinating people and tracking down information.

Technologies facilitate new capabilities.	Clinical Challenges	Operational Challenges
	Care Quality	Time required for non-direct care activities
	Patient Safety	Balancing home and work
New capabilities support innovative solutions.	Reassignment to non-familiar care areas	

Role of Imagination

Before you can achieve an improvement, you must first envision it. To increase awareness of “what’s available” and trigger ideas of “what’s possible,” this document highlights pockets of innovation where technology is being used in creative ways to improve the work experience of nurses across Maryland and elsewhere.

Role of Organizational Culture

Over the past 15 years, technology has crept into the nursing arena at a slow pace. When introducing new technology, there are many obstacles to overcome, including organizational, educational, and behavioral concerns. Professional networking

facilitates sharing of information between nurses facing similar problems, thus increasing the potential for the adoption of new technologies. Within this document, contact information is linked to technology examples to encourage networking between nursing leaders.

Clinical Challenges

Recent reports by the Institute of Medicine have moved patient care quality and safety to the forefront of the healthcare agenda. Patient safety is closely tied to information and communication infrastructures. This is especially true for nurses, who are primarily responsible for the implementation of patients’ plans of care. As a general rule, what’s good for nursing is also good for patient safety.

Operational Challenges

The ease with which nurses can access information, document care, communicate with other departments, and otherwise manage the details of care delivery directly relates to nurse retention because these things impact career satisfaction. People enter nursing to nurse patients, not to “nurse the system.” A survey of Maryland nurses was conducted by the Workplace Subcommittee of the Statewide Commission on the Crisis in Nursing that identified “too much time spent on non-direct care activities” as one of nurses’ top concerns.

The thoughtful introduction of technology can alleviate many clinical and operational challenges, so long as the business sector collaborates with nurses to “imagine” innovative products and services, and so long as the healthcare culture supports the change that accompanies the introduction of new technologies.

Keys to success include:

- Strong executive support
- Visionary and motivated nursing leaders
- Intuitive tools that are not difficult to learn to use
- Capable nursing informatics staff to redesign processes and facilitate introduction of the new tools

Technology to Address Maryland Nurses' Top Concerns

Challenge: Not enough nurses to manage workloads

Technologies don't replace physical nurses, but there are ways to use technology to ensure adequate skill mix and staffing, prepare new nurses, help nurses return to the workforce, and augment staffing and/or facilitating a presence in multiple locations through remote care giving.

Maryland Data

Eighty-seven percent of MD nurses have worked extra hours outside of their regular schedule in the last 12 months. Forty-seven percent say that some portion of it has been mandatory. Nurses report inadequate unit coverage (43%), inadequate staffing (43%), and unfilled positions (38%) as being "frequently" the cause for extra hours. *Source: Maryland Statewide Commission on the Crisis in Nursing – Workplace Issues Survey, 2001.*

Pockets of Innovation:

- **Back-to-work online refresher course**
Nurses with inactive Maryland RN licenses can prepare to reenter the workforce by taking a refresher course online. The online material is available 24/7, making the schedule flexible. After the course, nurses complete 60 hours of hands-on clinical at a hospital near their home.
Sandra Genrich, Ph.D., R.N.
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- **Augment ICU staff with remote caregivers**
Sentara Healthcare in Norfolk, VA has achieved a significant reduction in ICU mortality by augmenting on-site staff with clinicians (a physician, nurse and nurse practitioner) located at a remote support center. Utilizing VISICU technology, remote staff access to electronic patient data and are

able to visualize patients and interact verbally with caregivers at the bedside. Remote staff is a single call away, 24 hrs per day. They are able to resolve issues by providing orders and/or coordinating with numerous specialists prior to providing orders. This is a time-saver for bedside nurses, and interventions are timelier.

Leslie Martin, BS, RN, Clinical Manager
757-461-0241 lvmarti1@sentara.com

- **Simulate real life for training**
The University of Maryland School of Nursing utilizes physiologically competent manikins (SimMan®) to offer students opportunities to practice clinical skills. The manikin talks, breathes, has audible heart and lung sounds, simulated pulses and cardiac rhythms, and can be injected and intubated. Using this technology in training enables students to enter clinical settings with increased confidence and skill.
Debra Spunt, MS, RN, Director, Clinical Simulation Laboratory
410-706-7898 spunt@son.umaryland.edu
- **Augment nursing home staff with remote specialists**
Otterbein Retirement Living Communities (OH) utilizes a robot (InTouch Health) to make expert clinical resources available at a moment's notice in facilities across the state. Via the Internet, a clinician "driver" connects to the robot through a computer. The driver's face is projected onto a flat screen monitor, which acts as the head of the robot. There is real time video and audio between the Care Station and the robot so clinicians can drive around a facility and interact with others, like they were physically there. At the end of a four-month pilot, there has been a 16% reduction in falls, an 85% reduction in pressure ulcers, and clinicians have spent fewer hours in travel.
Kim Boggs, VP Clinical Operations
513-696-8556 kboggs@otterbein.org
- **Reducing demand by keeping patients out of the hospital**
At the University of Maryland Medical System, nurse practitioners are helping reduce re-hospitalizations of heart failure patients. Using a blood pressure cuff, heart rhythm monitor, and scale at home, patients transmit information electronically every morning to a computer (Philips Electronics) that alerts nurse practitioners when values are outside normal parameters.
Kay Branum, Ph.D., CRNP 410-328-7627
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Challenge: Nurse assignment to non-familiar care areas

Nurses are scheduled based on projected needs, but when unit census runs low on one unit but high on another, often nurses are asked to “float” to units with the greatest needs. Hospitals generally have parameters regarding equivalence of care areas that are taken into account, but even so, many nurses are uncomfortable floating. If a medical-surgical nurse floats to a semi-equivalent orthopedic unit, s/he may encounter traction devices with pulleys and weights with which the nurse may have limited experience. When nurses float, they are generally given regular loads, adding to the stress of the new environment.

Maryland Data

Forty-five percent of MD nurses report that staffing and skill-mix are never, rarely or sometimes adequate. Nurses end up working “short” or working overtime. Of the 53% of nurses who report being re-assigned away from their usual work area, 10% say it is “often or very often.” Seventy-one percent feel competent in the re-assigned area and half are oriented to the new work area. *Source: Maryland Statewide Commission on the Crisis in Nursing – Workplace Issues Survey, 2001.*

Pockets of Innovation:

- **Ensuring adequate skill-mix** At Johns Hopkins Hospital, a computerized workforce management tool allows healthcare facilities to create a “template” for the skill mix required for a unit. Using this template, a computerized system (Nightingale System by VasTech) optimizes staffing based on identified constraints while also keeping staff preferences in mind. Logic in the system lets you know when a skill-mix is off, or when someone is being asked to go to an area for which they are not trained. Time required for schedule creation has decreased by 2/3 and staff satisfaction has improved.
*Lynn Jones, MS, RN, Project Manager
410-955-8174 ljonesa@jhmi.edu*
- **Up-to-date, electronic protocols and procedures** The most popular feature of the Johns Hopkins Hospital's nursing intranet (which receives >10,000 hits a day) is online protocols & procedures. Nurses can look up the standards of care for managing patient problems/diagnoses or the steps in performing nursing/medical procedures online. In addition, nurses also have access to drug information, patient education materials, announcements, staff education and more. Nurses have confidence that they are looking at the latest information, and the hospital no longer prints paper manuals that go out of date.
Debra Case-Cromer, MS, RN Coordinator of Education, 410-955-4141 dcase@jhmi.edu

Challenge: Nursing time spent on non-direct care activities

Spending too much time on non-direct care activities contributes to nurse perceptions of not being used appropriately, and is related to the nurse shortage when nurses leave the profession as a result of dissatisfaction. Technology can be used to eliminate some of the “junk work” that leads to job dissatisfaction.

Maryland Data

Thirty-eight percent of nurses spend more than half of their shift doing paperwork. Sixty-seven percent feel that paperwork prevents them from spending as much time with their patients as is needed. *Source: Maryland Statewide Commission on the Crisis in Nursing – Workplace Issues Survey, 2001.*

Pockets of Innovation:

- **Real-time communication via wearable badges** At St. Agnes in Baltimore, staff can communicate anytime via a wearable, near-hands-free communication device called Vocera®. Nurses can touch their badge, say the name or role of the person they need, and continue to talk in a hands-free manner. This technology has been enthusiastically received by the staff nurses.
Kathi Diver, RN, Nurse Manager, St. Agnes
410-368-2321 kdiver@stagnes.org
- **Reduce time required to pass medications** A long term care facility in WI, has been able to cut 20 minutes from each medication pass for nurses, and reduce 60% of the ward clerks' time spent transcribing medications by utilizing a computerized medication administration record (American Data).
Mary Ann Kehoe, RN, Executive Director
Good Shepherd Services 920-833-6856
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- **Find open beds quicker** Staff in the Johns Hopkins ED can determine the real-time census of a satellite unit located 6 floors away via an electronic bed management system (micros BMS). Nurse assignments are no longer hand written, and reports are available to track lengths of stay and monitor delays in patient movement. Nurses are able to determine bed availability quickly and spend less time negotiating on the telephone.
Carol Gallaher, RN Nurse Manager
410-502-7842 cgallah1@jhmi.edu
- **Decrease delays in care** At Johns Hopkins Bayview, physicians enter orders at the patient's bedside electronically (Meditech) to decrease delays in intervention. An order notification prints for the patient's nurse, who can also view orders online, eliminating the need to search for paper charts. Provider order entry has resulted in higher nurse satisfaction, and is predicted to be a marketing point for attracting new nurses, particularly newer generation nurses.
Janet Kelly, RN Patient Care Manager
410-550-6944 jkelly8@jhmi.edu
- **Coordinate via mobile phones** At Union Memorial in Baltimore, nurses place calls and page physicians via wireless (SpectraLink) phones that they carry with them. Nurses answer incoming calls directly rather than leaving the bedside after being paged overhead. Patient satisfaction scores have improved and noise levels have decreased.
Karen Owings, RN Nurse Manager
410-554-2828 karen.owings@medstar.net
- **Easier, safer procedure** – Nurses no longer spend time performing straight catheterizations to assess urine residuals for rehabilitation patients. Nurses or technicians use bladder scanners to determine residual amounts non-invasively, saving time for nurses, increasing comfort for patients and decreasing risk of infection.
Peg Richards, MSN Johns Hopkins Bayview
410-550-0841 marichar@jhmi.edu
- **Replace bulky paperwork** A “PDA Call Book,” based on several off-the-shelf software packages, was developed to obtain, verify, and communicate potential abdominal organ transplant recipient data. The paper documentation previously carried by on-call nurses (often 5 inches thick) was eliminated. The system has been used over the past 2 years by 15 transplant nurse coordinators. Overall satisfaction is rated at the 90th percentile, signifying success.
Bryan Barshick, MS, RN Decision Support Manager The Johns Hopkins Comprehensive Transplant Center
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Challenge: Balancing the demands of home and work

When nurses feel torn between work and their family, job dissatisfaction soars. Technology can be employed to help plan work around family commitments, and view the work schedule and request shift swaps from home via the internet.

Maryland Data

More than half of the 392 nurses who respond to dependent care questions say that child care is very important (52%) and 39 percent say that adult care is very important. Nearly half say that sick-child care is very important (48%). While respondents report that a modest amount of child care is provided by employers (17%), very little sick-child care (4%) or adult dependent care (10%) is reported as available to nurses. *Source: Maryland Statewide Commission on the Crisis in Nursing – Workplace Issues Survey, 2001.*

Pockets of Innovation:

- **View work schedules from home** Nurses at Johns Hopkins Bayview will soon be able to access work schedules when they are away from the hospital using an electronic scheduling system (Meditech). Staff can identify schedule preferences, review or print their schedules, request time off and receive approvals, and sign up for open shifts from anywhere they have internet access. *Carol Thompson MS, RN Staffing Director 410-550-4821 cthomp15@jhmi.edu*
- **Eliminate paper request forms** At Altoona Hospital Center for Medicine (PA), nurses will soon contact each other to request shift swaps, communicate this to their managers, and receive approvals – all electronically. This saves nurses and nurse managers the hassle of dealing with paper request forms and meeting up in person for physical signatures. Nurses access the scheduling system (Care Systems Inc.) from home or work to choose the shifts they want to work, within the limits of their employment profiles, giving them more ability to plan their

schedules around family commitments. *Thomas Zeek, Director Nursing Info Services 814-949-3001 tzeek@altoonahospital.org*

- **Stay abreast of work announcements** It is difficult for nurses to keep up with work announcements due to the shift they work or family commitments on off-days. At the Johns Hopkins Emergency Acute Care Unit, unit announcements are posted to a Unit website so nurses can view them later using software from Intranets.com. The site can also be used to assign and track the status of unit-based tasks and create polls, discussion topics, and send e-mail to nurses at home. *Ray Blush, RN EACU Unit, Johns Hopkins 410-502-7842 rblush1@jhmi.edu*
- **Flexible in-services** Washington County Hospital has reduced the amount of time it takes nurses to complete annual training (Fire and Safety, Infection Control, etc.) by making them available to all nurses online at any hour from every nursing unit. Nurses can choose to complete their “mandatories” in one setting or in pieces over time, depending on what is most convenient for them. Other types of training programs are also available. *Brenda Cunningham, BSN 301-790-8261 cunninggb@wchsys.org*
- **Fill empty shifts** Nurses at St. Peter's Hospital (NY) use internet-based software (BidShift™) to bid on open shifts at the hospital. Nurses who meet minimum qualifications with the lowest bid rate are given the open shifts. Part-time nurses frequently use the system to work extra hours. Nurses can control their own schedule. The hospital nurse vacancy rate has dropped and money is saved by using internal nurses instead of agency nurses. *Philip Kahn, CIO 518-525-6725 pkahn@stpetershealthcare.org*
- **Work from home** The Coordinating Center provides care coordination services for people living in the community with complex medical and social needs. Nurse coordinators use laptops and remote access technology to allow nurses the ability to work out of their homes. Nurses appreciate greater flexibility which enables them to balance work and family. Since implementing the system three years ago, nursing staff turnover has been very low. *Carol Marsiglia MSN, CCM Division Director of ACCESS Consulting Group 800-296-2242 cmarsiglia@coordinatingcenter.org*

Improving Care Quality & Patient Safety

Recent reports by the Institute of Medicine have identified improving patient safety as a top priority for U.S. healthcare providers. The LeapFrog group, nationally recognized for promoting patient safety and customer value, is currently promoting three safety initiatives:

- Computerized provider order entry – entering medication orders via a computer linked to error-prevention software
- Evidence-based hospital referral – referring patients needing complex medical procedures to hospitals offering the best survival odds
- ICU physician staffing – utilizing physicians who have credentials in critical care medicine to staff intensive care units

Of the three initiatives, nurses are most directly impacted by computerized provider order entry (CPOE). Several examples of CPOE implementations, as well as other innovations to improve patient safety and quality, are highlighted below.

Pockets of Innovation:

- **Reduce Medication Errors** At the Baltimore VA Medical Center, nurses use a laptop on medication carts to scan barcodes on patient bands and medication packaging to double check that the right medication is being given to the right patient at the right time. The system alerts the nurse immediately of any inconsistencies or potential problems. An internal backup system is in place to download information every two hours so that a medication administration record could be printed in the event of a system failure. Training was intensive, but nurses are now used to using the new system. Time and motion studies indicate medication administration time is improving in long term care, but requires additional time in the ICU

setting.

*Janet Pierce, MEd, BSN, RN, Clinical Informatics Coordinator
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- **Receive drug alerts** At the University of Maryland Medical System, staff is notified immediately if an order is placed for a medication that a patient is allergic to, or if two ordered drugs have a potential negative interaction. Allergy and drug interaction checking capabilities are facilitated by a computerized provider order entry system that is integrated with a computerized pharmacy system (Cerner).
*Debra Roper, BSN, RN Project Manager
410-328-1038 droper@umm.edu*
- **Share information processing work** At the Johns Hopkins Hospital, a “nurse partner” role is used to assist nurses with information retrieval and processing tasks. A primary RN is assisted by an educated non-RN (LPN or para-health professional) who manages phone calls and paperwork that do not necessarily require an RN’s time, but which would be performed by an RN in the absence of a partner. The RN and partner stay in communication via cell phone. Patient satisfaction scores increased nearly 10 points during the pilot.
*Lisa Rowen, MS, RN Director of Nursing, Surgery
410-955-5353 Lrowen@jhmi.edu*
- **Reduce chances for error through verbally transmitted information** The Transplant Resource Center of MD posts organ & tissue donor information to a central, password-protected website database as soon as it is available. Donor service center staff has instant access to this info, as do surgeons, once they are paged and given a password for the case. This results in more accurate info and quicker transplantation times.
*Karen Kennedy, Director of Clinical Training
410-242-7000x3045 kkennedy@mdtransplant.org*
- **Electronic medication administration record** At the Peninsula Regional Medical Center, nurses scan patients and medications after the medication order has been verified and entered into an electronic system (McKesson) by the pharmacist. Nurses have not noted time savings, but accuracy of medication administration has improved.
*Sue Sherwood, BSN, Clinical Analyst
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Care Quality & Patient Safety (continued)

- **Legible handwriting provides clear instruction** At Union Hospital of Cecil County's ER, nurses no longer struggle to read physician's handwriting, because the physicians enter their orders directly into an electronic system (Meditech). This decreases chances for error and reduces delays in care.
Bonnie Davis, BSN, RN Mgr, Info Systems
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Nurses at Lancaster General (PA) are happy with legible orders & daily notes that are being produced by a physician who carries a laptop with templated, easy-to-complete electronic forms (created in MS Word) that are then printed and placed on the chart.
Ken Bowman RN, MS Project Leader
717-544-5059 krbowman@lancastergeneral.org
- **Monitor quality using handheld devices**
In the Surgical Intensive Care Unit of the Johns Hopkins Medical Center, nurses use PDAs to track compliance with best practices for central line insertion. Activities are stored in a database and is analyzed in relationship to hospital infection rates. Since implementation, the unit has noted a decrease in infections, and the PDAs are more efficient than tracking compliance information on paper.
Laura Winner, RN, MBA
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Recommendations

The recommendations contained in this section go beyond the scope of the Technology Workgroup. The Workgroup will enact some of the recommendations in 2004, but adoption by other Maryland entities will be required for these activities to continue in future years.

The role of the technology workgroup in enacting recommends will be to:

- Conduct a survey to assess technology utilization by Maryland nurses in 2004.
- Conduct an educational session in concert with MSHISM in spring, 2004.
- Facilitate broad dissemination of this report.
- Meet with representatives of existing Maryland entities to encourage adoption of recommendations. In this way, the Technology Workgroup will encourage sustained activities to support technology adoption in Maryland

1. Analyze technology usage

When the Technology Workgroup members first met, it became readily apparent that we did not have data to describe the diffusion of technology throughout the state, or to identify what technologies Maryland nurses are using today.

The Technology Workgroup is developing and will conduct a formal survey to assess technology utilization by Maryland nurses in 2004, with findings to be published later this year. However, we recommend this activity occur on an annual basis so that trends are recognized, potential problems are identified early, and data-driven recommendations to healthcare organizations and state legislators can be made. This can be a state supported effort, such as the Health Services Cost Review Commission (HSCRC), or an activity of a local non-profit entity such as the Capital Area Roundtable on Informatics in NursinG (CARING) and/or the Maryland chapter of the Healthcare

Information and Management Systems Society (HIMSS).

2. Diffuse technology knowledge

Maryland nurses need information on the latest trends and lessons learned based on periodic assessments of technology usage in Maryland. After each assessment, we recommend a follow-up symposium to disperse knowledge to nurses and nursing leaders throughout the state. Symposiums can be in person or by web-cast, eliminating the need for travel. If successful at the state level, Maryland may consider exporting web-based symposiums to others states in the future.

3. Leverage education dollars through coordinated student projects

The field of nursing informatics is the key intersection point between nursing practice and technology. The nursing informatics program at the University of Maryland School of Nursing is nationally recognized. Each student is required to complete a practicum in a facility or company within the surrounding area. We recommend that student projects be coordinated to leverage education dollars, provide students the opportunity to contribute to larger projects, and see actual technology projects through to completion in healthcare facilities throughout the state.

4. Improve awareness of funding opportunities

Maryland Nurses should be made aware of potential funding sources for technology related projects. There are funds available for health care projects specifically involving information technology in any healthcare setting. Some sources offer funding for demonstration projects and others require research studies. Some of these sources are listed in the following pages.

Recommendations (continued)

5. Explore revolving loan funds

We recommend that the state of Maryland collaborate with the federal government to explore the concept of revolving loan funds to finance technology infrastructure projects in healthcare. This model is currently being recommended by the Health Technology Center, a non-profit research and education organization. <http://www.healthtech.org>

Revolving load funds are funds that use an initial amount of capital to lend money to qualifying infrastructure projects and then recycle debt repayments and other revenues into further loans. In this model, the federal government would make an initial investment in capital that would be allocated to each of the states. The states would then distribute the funds to local, community-based not-for-profits responsible for deciding what projects should receive loan financing or grant funding and on what terms. This model has been a useful method of funding for other infrastructure projects throughout the nation (wastewater and drinking water) but has yet to be utilized in healthcare.

6. Introduce a contest for “Best use of Technology” in nursing

We recommend that a Maryland-based non-profit entity introduce an annual award for the best example of an “improved work experience for Maryland nurses” through the introduction of relevant technologies.

Funding Opportunities

Agency for Healthcare Research and Quality (AHRQ)

In November, 2003 AHRQ announced three new Requests for Applications (RFAs) for approximately 100 grants to plan, implement, and demonstrate the value of health information technology to improve patient safety and quality of care.

1. Transforming Healthcare Quality through Information Technology (THQIT) – Planning Grants

\$7 Million for up to 35 grants
Released November 20, 2003
RFA-HS-04-010

<http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-04-010.html>

The objective of this RFA is to support community-wide planning processes across multiple healthcare organizations within a local or regional area that will enable them to develop Health Information Technology (HIT) infrastructure that provides for effective exchange of health information within the community. Applicants may use these funds for planning development of important infrastructure components including, but not limited to, computer networks, hardware, software, personnel, project management, and quality improvement and research capacity.

AHRQ is particularly interested in supporting community-wide collaborative partnerships that include acute care hospitals, clinics, health care providers, and other health delivery organization (e.g., public health) that will also help to provide effective HIT tools for immediate access to complete and timely health care information in diverse health care settings. Through this initiative, AHRQ seeks to support collaborative planning processes that will result in standards-based data sharing across multiple care sites and lead to measurable and sustainable improvements in patient safety and quality of care.

Letter of Intent Receipt Date: 2/6/2004
Application Receipt Date: 4/22/2004

Institutions are eligible to submit applications if they are domestic, non-profit and included in any one of the following categories: domestic institutions, public and private non-profit institutions, units of State and local governments, Tribes and Tribal governments, or Faith-based organizations.

2. Transforming Healthcare Quality through Information Quality (THQIT) – Implementation Grants

\$24 Million for up to 48 grants
Released November 20, 2003
RFA-HS-04-011

<http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-04-011.html>

The objective of this RFA is to support organizational and community-wide implementation and diffusion of HIT and to assess the extent to which HIT contributes to measurable and sustainable improvements in patient safety and quality of care. Research resulting from this RFA should inform AHRQ, providers, patients, payers, policymakers, and the public about how HIT can be successfully implemented in diverse health care settings and lead to safer and better health care. The RFA emphasizes the importance of community partnerships. AHRQ will provide up to 50 percent of the total costs in matching funds, not to exceed \$500,000 per year, for each project.

Letter of Intent Receipt Date: 2/6/2004
Application Receipt Date: 4/22/2004

Eligible entities include domestic institutions, for-profit organizations, public and private non-profit institutions, units of State and local governments, Tribes and Tribal governments, and Faith-based organizations/institutions.

3. Demonstrating the Value of Healthcare Information Technology

\$10 Million for up to 20 grants
Released November 21, 2003
RFA-HS-04-012

<http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-04-012.html>

The main objective of this RFA is to support projects that will increase our knowledge and understanding of the value of HIT, which includes clinical, safety, quality, financial,

organizational, effectiveness, efficiency, or other direct or indirect benefits that may be derived from the use of HIT in the delivery of health care. The findings from this initiative should provide these stakeholders with information needed to make better and more informed clinical, purchasing, and other important health care decisions regarding the use of HIT in their environment.

The other objective of this RFA is to support the development of models or other tools that can be used to help demonstrate the value of HIT or to advance the adoption of HIT.

Letter of Intent Receipt Date: 2/6/2004
Application Receipt Date: 4/22/2004

Eligible entities include non-profit organizations, domestic organizations, public and private non-profit institutions, such as a universities, clinics, colleges, or hospitals, units of State and local government, Tribe or Tribal organizations and Faith-based or community-based organizations.

Health Information Technology Resource Center The remainder of the AHRQ \$50 million portfolio will be spent on other activities, including the creation of a Health Information Technology Resource Center. The center will provide technical assistance to grantees; serve as a repository for best practice assimilation and diffusion; help develop, maintain and export executable knowledge for clinicians and patients; perform and sponsor educational activities; and develop and disseminate tools to help providers and organizations utilize HIT to improve patient safety and quality of care.

For more information, contact AHRQ Public Affairs: Howard Holland (301) 427-1857 HHolland@ahrq.gov or Ron Rabbu (301) 427-1862 RRabbu@ahrq.gov.

Health e-Technologies Initiative

The Health e-Technologies Initiative is a \$10.3-million National Program Office of The Robert Wood Johnson Foundation that supports research which evaluates the effectiveness of interactive e-Health applications for health behavior change and chronic disease management.

In September, 2003 the Health e-Technologies Initiative announced its first grant recipients. A second call for proposals is planned. <http://www.hetinitiative.org/>

American Nurses Foundation (ANF)

The ANF provides funds to beginner and experienced nurse researchers to conduct studies that contribute toward the advancement of nursing science and the enhancement of patient care. Awards are given in all areas of nursing, including healthy patient outcomes, health care policy development, critical care, gerontology, women's health, community and family intervention. <http://nursingworld.org/anf/>

Sigma Theta Tau International Honorary Society of Nursing Each year, Sigma Theta Tau offers 10-15 \$5000.00 grants to encourage Master's prepared nurses to contribute to the advancement of nursing through research http://www.nursingsociety.org/research/grant_small.html

National League for Nursing (NLN) The NLN periodically provides funds to nurse researchers. March 1, 2004 is the deadline for two research grants relating to the research priorities of the NLN. See 2004 RFP To Pilot Test National, Multi-Site, Multi-Method Studies and 2004 RFP Small Grants Program. Small projects are eligible for up to \$5,000 in grant support. Larger, multisite, multimethod pilot projects are eligible for up to \$20,000 in grant support. <http://www.nln.org/research/index.htm>

Universal Service Administrative Company (USAC) The Rural Health Care Division of USAC is responsible for ensuring that health care providers in rural areas obtain the benefits of current telecommunications technology as provided for by the United States Congress and the Federal Communications Commission (FCC) through universal service support. The FCC established a program that will fund up to \$400 million annually so that rural health care providers pay no more than their urban counterparts pay for the same or similar telecommunication services. <http://www.rhc.universalservice.org/>

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The name and web address of vendors mentioned in technology examples as well as links to supporting news stories are provided in this section. The Technology Workgroup does not endorse nor recommend specific vendors, nor is this designed to be an exhaustive listing of vendors who create products for use by nurses.

American Data – www.american-data.com

BidShift™ – www.bidshift.com

Care Systems Inc. – www.caresystemsinc.com

CathSim® Vascular Access Simulator
www.immersion.com/medical/products/vascular_access/simulator_modules.php

Cerner Corporation – www.cerner.com

College of Southern Maryland Nursing and Health Technology
www.frc.csm.cc.md.us/nur/online.htm

EDS and Bar Code Administration System at the VA Medical Center
www.eds.com/case_studies/case_veterans_health.shtml

InTouch Health – www.intouchhealth.com

McKesson – www.mckesson.com

Meditech – www.meditech.com

MICROS Medical Systems – www.micros.com/medical

Philips Electronics <http://www.medical.philips.com/main/company/>

SpectraLink – www.spectralink.com

Transplant Resource Center of Maryland
www.nursezone.com/Job/DevicesandTechnology.asp?articleID=11187

University of Maryland School of Nursing Clinical Simulation Laboratory
<http://nursing.umaryland.edu/ilt/simlabs.cfm>

University of Maryland Medical Systems and remote cardiac monitoring
www.nursezone.com/Job/DevicesandTechnology.asp?articleID=11211

VasTech, Inc. – www.vastech.com

VISICU – www.visicu.com

Vocera Communications – www.vocera.com

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